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Project Number 2872

Commander, Southern Division
Naval Facilities Engineering Command
ATTN: Mr. Nick Ugolini (Code ES242)
2155 Eagle Drive
North Charleston, South Carolina 29406

Reference: Clean Contract Number N62467-94-D-0888
Contract Task Order Number 0192

Subject: Work Plan for Site Screening at Various Petroleum Sites
Naval Air Station Jacksonville
Jacksonville, Florida

Dear Mr. Ugolini:

Tetra Tech NUS, Inc. (TtNUS) is pleased to submit this letter presenting the field procedures to be used for the screening of multiple sites under the referenced Contract Task Order (CTO). This letter was prepared for the United States Navy (Navy) Southern Division Naval Facilities Engineering Command (SOUTHNAVFACENGCOM) under CTO 0192, for the Comprehensive Long-term Environmental Action Navy (CLEAN) Contract Number N62467-94-D-0888.

Introduction

The various Petroleum Contamination Area (PCA) sites (see Table 1 attached) at Naval Air Station (NAS) Jacksonville have been identified as possibly having experienced a release of petroleum compounds. Typically the sites previously contained a storage tank or had operations involving the use of petroleum compounds. Oftentimes the site was identified as a PCA during a tank removal where visual evidence of potential contamination was observed. Limited information is available for these sites and in most cases, no soil or groundwater samples have been collected prior to this activity.

Petroleum tanks previously were located at Site 650. During the tank removal by another contractor, no soil or groundwater samples were collected. The Navy has requested that TtNUS perform sampling as required to prepare a tank closure report under the requirements of Chapter 62-770, Florida Administrative Code (FAC). TtNUS has planned a technical approach that has been used in the past with the Florida Department of Environmental Protection (FDEP) at other non-Navy facilities.

PCA 22 consists of two Officer's Quarters single family homes. These were identified during the tank removal process that was conducted to remove heating oil tanks from each Officer's Quarter's house. During the tank removal activities, two Officer's Quarters tank sites were discovered to have potential contamination. Free product was reported at one of these two sites. Additional effort will be used in an attempt to locate the free product.

Objective and Scope

The objective of the proposed Scope of Work for the PCA sties is to screen these sites for potential soil and groundwater contamination via limited sampling (at most sites one boring). For Site 650, the objective is to sample soil and groundwater to provide tank closure documentation.

The proposed scope of work for screening activities at each site is as follows:

- Install a soil boring via Direct Push Technology (DPT) to approximately four feet into the saturated zone at the approximate center of the previous tank location (as can be determined from the base's information). If a tank is covered by something that prohibits planned boring placement (e.g. brick sidewalk at the Officer's Quarters), place the boring as close as possible to the tank location.
- Collect soil samples on two-foot intervals and screen the samples with a flame ionization detector (FID). A split of the sample with the highest FID reading will be submitted to an off-site laboratory for analyses.
- Collect a shallow groundwater sample from the open DPT boring and submit it to an off-site laboratory for analyses.

Since select sites have been reported as having or requiring additional activities, the following additional activities are planned:

- For PCA 22, install one permanent well to be installed via hollow stem augering (HSA) techniques at the Officer's Quarters that was reported to have free product contamination.
- PCA 21 has three existing wells. TiNUS will sample the existing wells only, and install no DPT borings.
- A tank closure report for PCA 5, Site 650 will be prepared. The required sampling was not performed during the tank removal and closure activities. Therefore, sampling will be performed to attempt to collect information that can be used to support a tank closure assessment report.

Field Operations

Field operation activities to be performed at NAS Jacksonville for this investigation include the following:

- mobilization/demobilization
- utility clearance
- environmental sampling
- soil and groundwater sampling via DPT and fixed based lab
- HSA and monitoring well installation
- Monitoring well development
- water level measurements
- Investigative derived waste (IDW) management

Mobilization

TiNUS and their subcontractors will mobilize to the field as soon as the scheduling permits after subcontracting actions are complete. The mobilization task includes the following:

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- Activities associated with preparation for the field activities such as coordination with all subcontractors (DPT, IDW disposal, and the laboratory) and NAS Jacksonville personnel.
- Preparation, packaging, and shipping of required field equipment and materials.
- Performance of site specific health and safety training for all on-site personnel.

Utility Clearance

NAS Jacksonville and TtNUS personnel will clear utilities at the various sites to be investigated. All intrusive sampling locations will be "cleared" via markings from base personnel and hand augering to four feet by the DPT rig operator.

Environmental Sampling

Table 1 summarizes the sampling program for the various PCA sites and Site 650. Soil samples shall be collected with either two or four foot samplers with plastic liners. Soil cores will be collected during the DPT advancement. Soil from these cores will be screened using a FID to determine the presence of volatile organic compounds (VOCs). One soil sample collected from each PCA site will be submitted to a fixed base laboratory for analysis and five soil samples will be submitted from Site 650 for analysis.

At the DPT locations, groundwater samples will be obtained by advancing the sample rods to the desired depth, then revealing a stainless steel screen to the formation. A sufficient volume of groundwater (typically several well volumes) to purge the formation of silt and sediment will be extracted via a peristaltic pump. After the water appears visibly clear, one groundwater sample will be collected and submitted to a fixed based laboratory for analysis and five groundwater samples will be submitted from Site 650 for analysis.

Groundwater samples collected from existing and newly installed monitoring wells will be collected via low flow purging and sampling techniques using a peristaltic pump. Teflon tubing will be used during sample collection. The FDEP Standard Operating Procedures (SOPs) related to the groundwater sampling to be performed will be followed for this field event.

DPT Soil and Groundwater Sampling with Fixed Base Lab

The DPT and fixed base laboratory activities will be used to screen the various sites for potential petroleum hydrocarbon impacts to the soil and groundwater.

Soil samples will be collected during hand augering and DPT operations as required until groundwater has been reached. Groundwater samples will be obtained using DPT methods by exposing a stainless steel screen to the formation. A sufficient volume of groundwater will be extracted to purge the formation of silt and sediment (as practical). After the water appears visibly clear, the groundwater sample will be collected and submitted to the fixed base laboratory for analysis. No field measurements will be used for determining when to collect the samples.

The fixed base laboratory will analyze only for the constituents listed in the Gasoline Analytical Group (GAG) and Kerosene Analytical Group (KAG) Group. Lead will not be analyzed from the groundwater samples collected during DPT operations due to the type of sampling performed (i.e., no monitoring well or sand pack). This list includes the following:

- benzene
- toluene
- ethylbenzene
- xylenes
- methyl tertiary-butyl ether (MTBE)

- naphthalene
- 1-methylnaphthalene
- 2-methylnaphthalene
- 16 method listed polynuclear aromatic hydrocarbons (PAHs) included in Table A of 62-770, FAC
- 1,2-dichloroethane and other priority pollutant volatile organic halocarbons (VOHs)
- 1,2-dibromoethane
- total recoverable petroleum hydrocarbons (TRPH)

HSA and Monitoring Well Installation

The monitoring well boring associated with PCA 22 shall be advanced using a hollow stem auger. The shallow well boring will be advanced using 4.25-inch inside diameter (ID), HSA drilling techniques. The monitoring well will be constructed of Schedule 40, flush joint threaded, 2-inch diameter polyvinyl chloride (PVC) riser pipe and flush joint threaded, factory slotted well screen with a threaded end cap. The well screen will be factory-slotted to 0.010-inch size. Each section of well casing and screen shall be National Sanitation Foundation (NSF) approved. The well screen will be 10-feet long and the bottom plugs will be flush threaded. The monitoring well is anticipated to be installed to a depth of approximately 15 feet below land surface (bls). The depth may vary depending on the site conditions and will be determined by the on-site field geologist. The geologist leading the field effort will also make the final determination for monitoring well location.

The monitoring well will be installed through the augers immediately upon completion of the well boring. A clean silica sand pack will be installed through the augers as the augers are removed from the boring. Clean silica sand of U.S. Standard Sieve Size No. 20 to 30 will be used. The sand pack will be extended from 0.5 foot below the well screen to 1.0 foot above the top of the well screen. A minimum 2-foot thick 30/65 grade sand seal will be installed above the sand pack.

Drilling cuttings produced from the installation of the monitoring well will be containerized and disposed along with waste from the High Power Turn-Up Pad.

The HSA subcontractor will install flush mount, sealing, well covers. The flush mount cover shall be a 10-inch round security vault provided with sealing gasket to reduce the amount of water infiltration. A 2-foot by 2-foot by 6-inch thick concrete apron will be constructed around each flush mount well. The flush mounted casings shall be completed 2 inches above existing grade and the apron tapered to be flush with existing grade at the edges such that water will run off of the apron. A locking "J-plug type" cap shall be placed and secured on top of each well casing to protect from tampering/opening.

Monitoring Well Development

Monitoring wells will be developed no sooner than 24 hours after well completion to remove fine material from the area around the monitored interval of the well. Typically, the subcontractor will develop the wells via pumping and with oversight by a field geologist. Wells will be developed in accordance with the current FDEP SOP. Field parameters, such as pH, temperature, specific conductance, and turbidity, will be obtained during development.

Water-Level Measurements

Synoptic water-level measurements will be performed on the newly installed and existing monitoring wells at the various sites during this investigation. This will be accomplished using an oil-water interface probe to measure depth to water and the presence of free-phase product in each well.

The newly installed monitoring well at PCA 22 will also be gauged using an oil/water interface probe to screen for free product. If free product is detected, the thickness will be measured. If free product is not present, a groundwater sample will then be collected.

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IDW Management

Drill cuttings from well installations, well development water, and purge water will be collected and containerized in United Nations approved (Specification UN 1A2) 55-gallon drums. Each drum will be sealed, labeled, and transported to a drum staging area, pending IDW analytical results. The method of off-site disposal will be determined by these analytical results. A waste staging area will be established at the site to store IDW generated during the site assessment investigation.

A lined decontamination pad will be constructed and used to collect the water from steam cleaning of drilling equipment. Decontamination materials generated during the site investigation will be containerized for proper disposal.

Data Quality Requirements

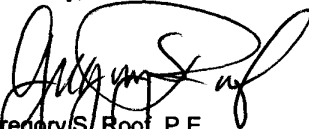
Since this is a screening level effort, no quality assurance/quality control (QA/QC) samples will be collected at the PCA sites and Site 650. However, field activities and sampling and analysis will be done in general accordance with FDEP SOPs.

Reporting

The sampling results for each site will be reported in a separate letter report that discusses the fieldwork performed, the results, and any recommendation based on the results and historical information. These documents will be issued in both draft and final format.

If you have any questions with regard to this submittal, please contact me at (904) 281-0400 or via e-mail at roofg@ttnus.com.

Sincerely,



Gregory S. Roof, P.E.
Task Order Manager



Debbie Wroblewski
Program Manager

GR/alp

Attachments

cc: Mr. Frank Sigona, NASJAX
Mr. Jorge Caspary, FDEP
Mr. M. Perry, TtNUS (unbound)
Ms. D. Wroblewski, TtNUS (cover letter only)
Field Copy (2)
CTO 0192 Project File

TABLE 1
SUMMARY OF SAMPLING PROGRAM
VARIOUS PCA SITES
NAVAL AIR STATION JACKSONVILLE, FLORIDA

PCA Number	Number of Gasoline and Kerosene Analytical Groups Samples (except total lead)	
	Soil	Groundwater
5 (Site 650)	5	1
11	2	2
12	2	2
18	1	1
19	1	1
20	1	1
21	0	0
22	3	3
23	1	1
24	1	1
Total	17	13
Total lead will not be run since wells will not be installed.		